



BROCADE AND LEVITON Technology in the Data Center

LEVITON[®]

Network Technology
ALLIANCE

BROCADE 

Visit:
www.leviton.com/brocade

BROCADE 

Sales:
1-888-BROCADE
1-408-333-4300

Support:
1-800-752-8061
1-408-333-6061

General Inquiries:
1-408-333-4300

www.brocade.com

LEVITON[®]

Customer Service:
1-800-722-2082
1-425-486-2222

Support:
1-800-824-3005

International:
1-425-486-2222

Data Center Team:
dcteam@leviton.com

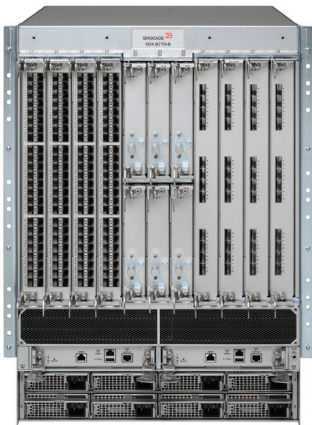
www.leviton.com

BROCADE OVERVIEW

More than ever, IT organizations face the reality that they will need to upgrade and modernize their legacy infrastructures to be more dynamic, reliable, and scalable in order to meet the needs of a virtualized data center. Brocade believes that an intelligent, ultra-reliable, and high-performance network infrastructure is fundamental because networks are the touch points for all resources available in the data center.

Brocade's industry-leading switches are the foundation for high-performance connectivity in storage, IP, and converged network environments. These highly reliable and scalable switches are designed for a wide range of environments —enabling a low total cost of ownership and a high return on investment.

BROCADE SWITCHES



VDX 8770 Switch

The Brocade VDX 8770 Switch is a highly scalable, low-latency, 1/10/40 Gigabit Ethernet (GbE) modular switch. Designed to easily scale out Brocade VCS fabrics, the Brocade VDX 8770 Switch brings new levels of performance to VCS fabric deployments. It is designed with advanced capabilities, including 100 GbE and hardware-enhanced SDN support, to support data center networking a decade or more into the future. It is available in both 8U four-slot and 15U eight-slot versions.



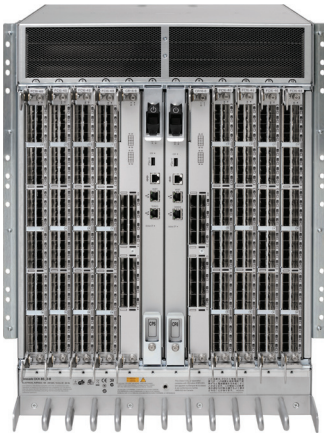
Brocade VDX 6740 and 6740T Switches

The Brocade VDX 6740 and 6740T are Ethernet fabric top-of-rack (ToR) switches featuring 10 Gigabit Ethernet (GbE) ports with 40 GbE uplinks. Together with Brocade VCS Fabric technology, these switches deliver the high performance and low latency needed to support demanding virtualized data center environments.

The VDX 6740 and 6740T switches can simplify network design and operations for a more automated and efficient network, offer the flexibility needed to easily scale networks, deliver the intelligence required to more effectively manage Virtual Machine (VM) mobility and rack density, as well as provide a cloud-ready infrastructure.

Brocade VDX 6740 and 6740T Switches offer:

- High performance and low latency: Provides high performance with 10 Gigabit Ethernet (GbE) access ports and 40 GbE uplinks, as well as ultra-low latency through wire-speed ports and automated hardware-based Inter-Switch Link (ISL) trunking
- Simplified architecture: Simplifies network architectures and enables cloud computing with Brocade VCS Fabric technology
- Easy configuration: Enables organizations to manage an entire VCS fabric as a single switch with Brocade VCS Logical Chassis
- Maximizes network utilization: Enables efficient, load-balanced multipathing at Layers 1, 2, and 3, including multiple Layer 3 gateways
- Advanced storage connectivity: Provides Ethernet storage connectivity for FCoE, iSCSI, and NAS
- Optimizes virtualization: Offers the automation needed to support highly virtualized server and storage environments while enabling the transition to cloud computing



SAN: DCX 8510 Switch

Brocade DCX 8510 backbones provide a powerful Fibre Channel switching infrastructure, offering the most reliable, scalable, high-performance foundation for private cloud storage and highly virtualized environments. They are designed to increase business agility while providing non-stop access to information, and reducing infrastructure and administrative costs.

Networks need to evolve in order to support the growing demands of highly virtualized environments and private cloud architectures. Fibre Channel, the de facto standard for storage networking, is evolving within the data center. The introduction of Brocade DCX 8510 Backbones with 16 Gbps Fibre Channel delivers a new level of scalability and advanced capabilities to this robust, reliable, and high-performance technology. This enables organizations to continue leveraging their existing IT investments as they grow their businesses. In addition, they can consolidate their Storage Area Network (SAN) infrastructures to simplify management and reduce operating costs.

LEVITON DATA CENTER SOLUTIONS

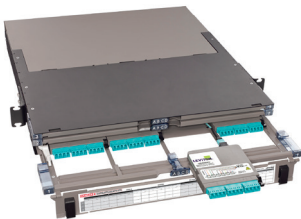
Leviton data center systems are designed for turnkey implementation of the physical layer. With high-end systems that include array cords, trunk cables, patch panels, patch cords, and cassettes, Leviton helps your physical layer infrastructure meet the needs of 10/40/100 GbE requirements.



Opt-X Unity® 40/100G MTP® Fiber System

Update your data center to meet new high-speed applications with the Leviton Opt-X Unity 40/100G Fiber System — a simple connectivity solution that makes it easy to migrate to 40 GbE and 100 GbE speeds. System components include MTP trunk cables, harnesses, array cords, and cassettes. They are available in laser-optimized multimode (OM3/OM4/OM4+) and feature industry-leading 24-fiber MTP connectors. Combine with OM4+ cabling for greater bandwidth and longer reach.

- System of trunks, harnesses, and modules is 40/100G ready
- Industry-leading 24-fiber MTP system
- Trunks, harnesses, modules, and array cords use best-in-class MTP multifiber connectors
- Available in Leviton HDX, SDX, and e2XHD module platforms
- Third-party verification of 40/100G channel performance



HDX Platform

The HDX platform alleviates the network growing pains faced by many large enterprises and data centers. Compact HDX cassettes and adapter plates help IT managers use existing rack space more efficiently, while creating room for future growth. The cassettes and plates work with high-density UHDX and HDX enclosures, allowing up to 144 LC fibers per rack unit.

- Easily migrate from 10G to 40/100G when used with Opt-X Unity trunks, harnesses, and patch cords
- Fiber cassettes are available in 12- or 24-fiber options with LC or MTP connectors
- 1RU enclosures hold up to 144 fibers (using LC) and 2RU enclosures hold up to 288 fibers using HDX adapter plates and MTP cassettes



SDX Platform

The SDX platform serves small-to-medium data centers and businesses where network space is less of an issue. It's ideal for maintaining pre-existing infrastructure that requires easy cable management. These cassettes and plates work with both SDX rack-mount and wall-mount enclosures, as well as Leviton's Vertigo enclosures that mount outside of the rack.

- Easily to migrate from 10G to 40/100G when used with Opt-X Unity trunks, harnesses, and patch cords
- Cassettes support 48 fibers using MTP-MTP or 24 fibers using MTP-LC



e2XHD Patching System

The cassette-based e2XHD Patching System provides a high-density solution for data center applications where fast deployment and simple maintenance are priorities. e2XHD fiber cassettes quickly snap in and pull out of high-density 1RU and 4RU panels, making installation, moves, adds, and changes (MACs) easier than ever. The e2XHD cassettes work seamlessly with Opt-X Unity trunks, harnesses, and array cords to deliver 10, 40, and 100 GbE speeds.

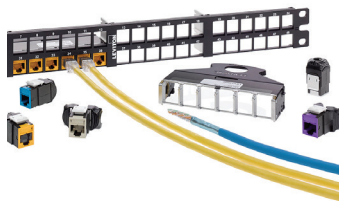
- Panels allow mix and match of Leviton fiber and copper snap-in cassettes
- Fiber cassettes are available in 12- or 24-fiber options and OM3, OM4, or single-mode fiber types
- Adjustable MTP adapter swivels, allowing for easy routing of incoming MTP cables
- Copper cassettes are available on pre-terminated trunks or kitted with field-terminated eXtreme Cat 6A or Cat 6 connectors
- System accessories include a rear cable manager that snaps directly into the panel, blank cassette inserts for unused cassette openings, and a top cover for angled panels to minimize dust and debris



High-Density Replicator® Enclosure

Leviton High-Density Replicator Enclosures support Storage Area Network (SAN) switches from Brocade, including the VDX 8510. The key feature, Logical Port Management (LPM), is designed to deliver an exact, one-to-one replication (blade number and port count) of switch inputs at main distribution, allowing simplified moves, adds, and changes where the panel is deployed rather than at the switch.

- Up to 384 channel capacity (768 fiber strands)
- Available with LC and MU connector interfaces
- Replicator kits available with trunks, MTP panels, and harnesses



Atlas-X1™ Cat 6A System

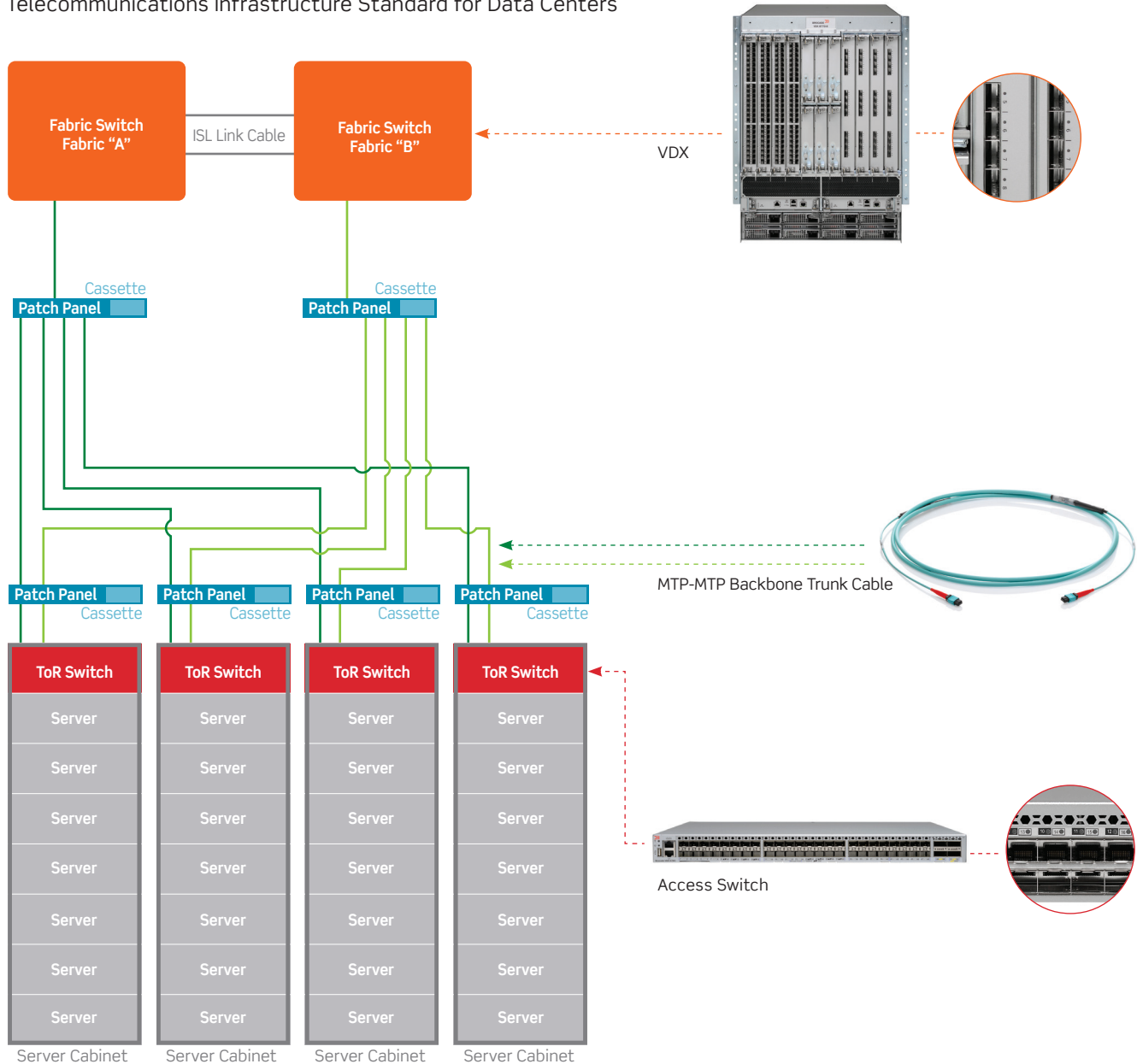
The Atlas-X1 Cat 6A component-rated system delivers the highest level of verified performance for today's high-bandwidth applications. The system's connectors, patch panels, and patch cords have each been independently tested and verified by Intertek (ETL) to meet or exceed ANSI/TIA-568-C.2 component performance. When combined with approved horizontal cable, this ensures greater permanent link and channel margins to support 10GBASE-T networks up to 500 MHz.

- Cat 6A system supports short-length applications in server rows down to 10 feet
- Connector features robust metal body to increase longevity and eliminate alien crosstalk
- SlimLine-boot patch cord features a narrow profile for less congestion in higher density applications

BROCADE AND LEVITON: CONNECTIONS

Basic Topology as defined by ANSI/TIA-942-A

Telecommunications Infrastructure Standard for Data Centers



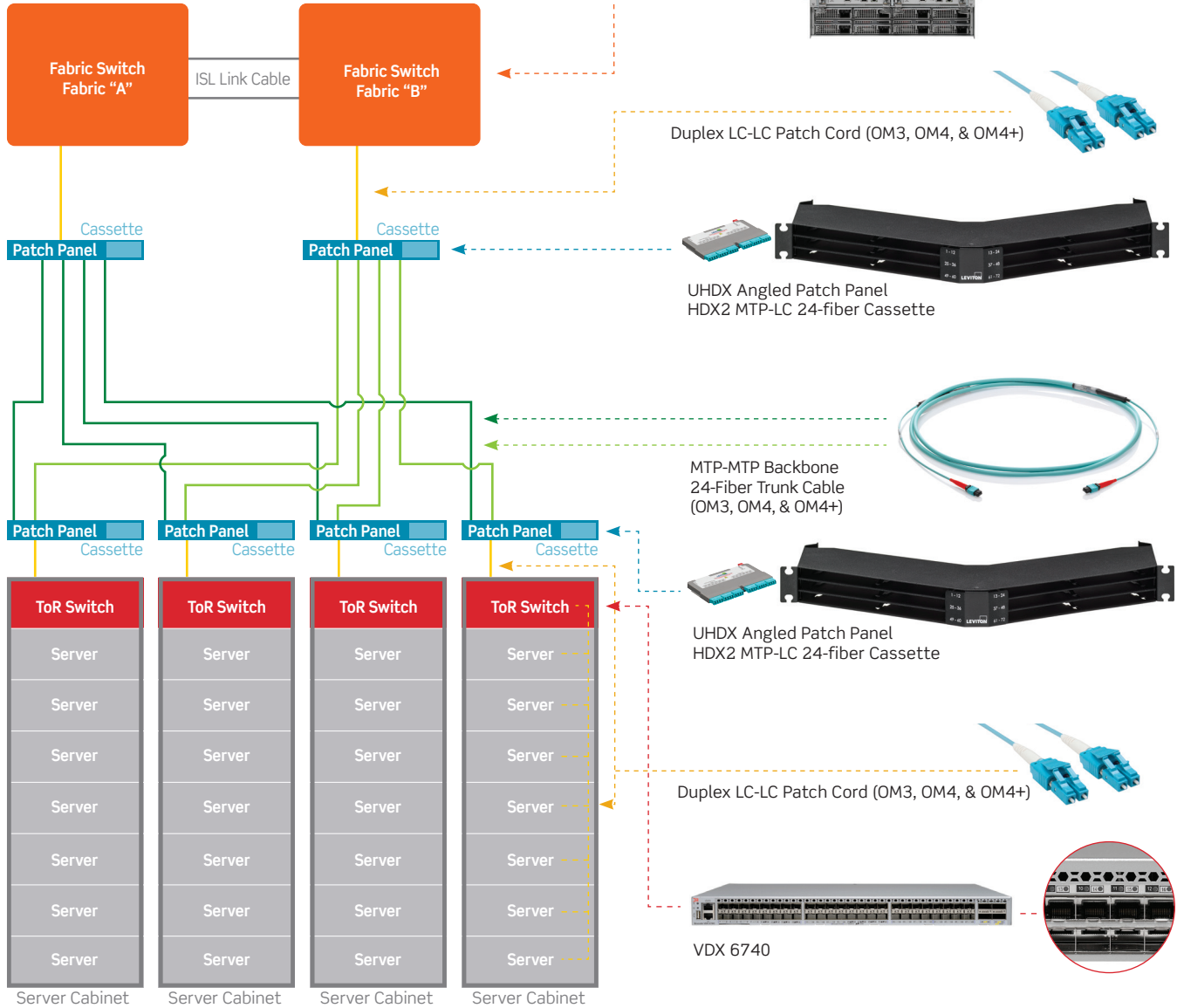
Migration from 10 GbE to 40 GbE and 100 GbE

The following pages show 10, 40, and 100 GbE network topologies, using Brocade switches and Leviton connectivity. Each application includes the same 24-fiber MTP backbone trunk cables and patch panels.

10 GBE APPLICATION

Suggested 10 GbE Solution Building Blocks:

- Opt-X® Unity 40/100G Pre-Terminated MTP Trunks
- UHDX Ultra High-Density Angled Patch Panels
- HDX MTP®-LC Cassettes
- LC Duplex Patch Cords (OM3, OM4, & OM4+)

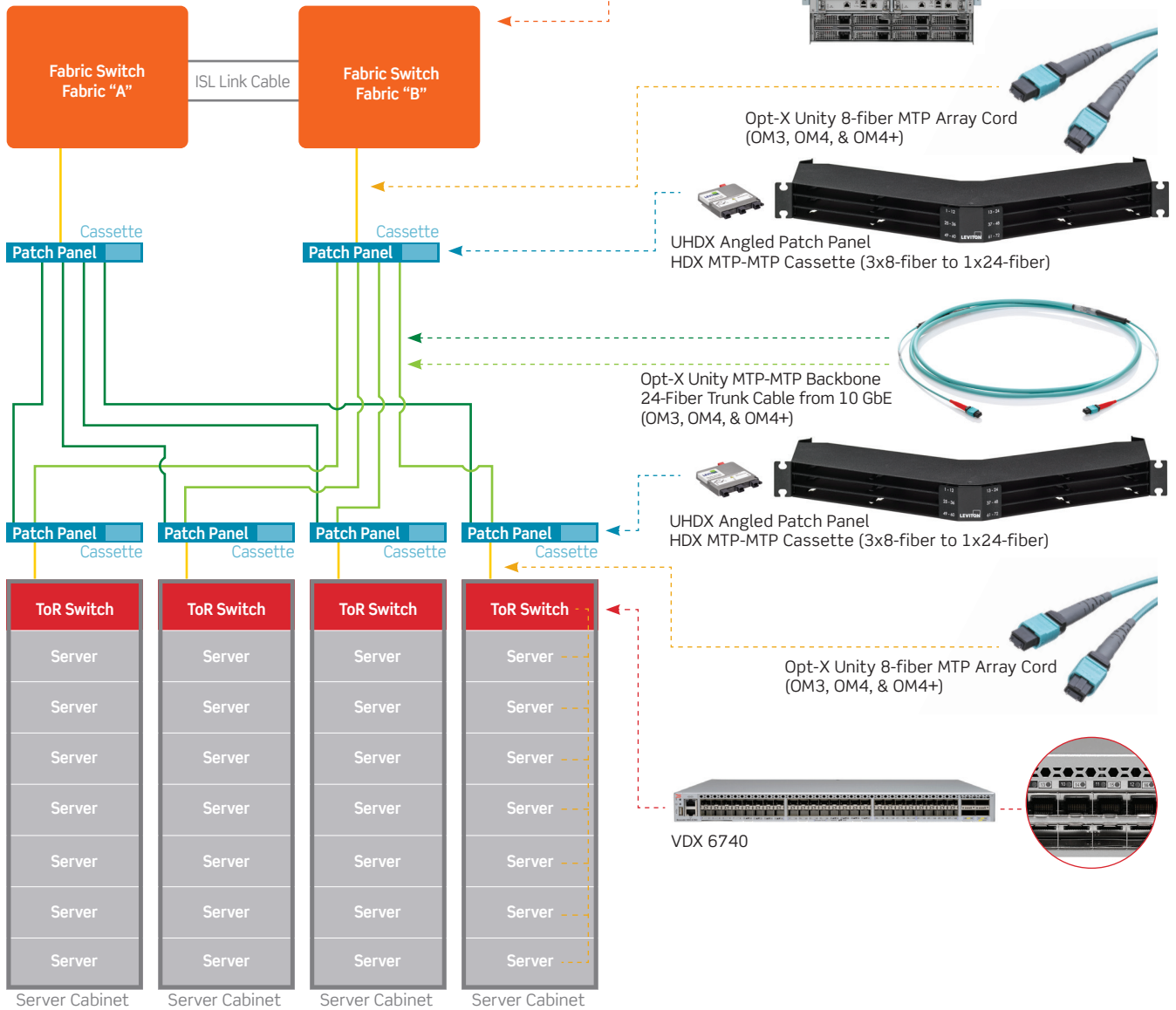


40 GBE (SR4) APPLICATION

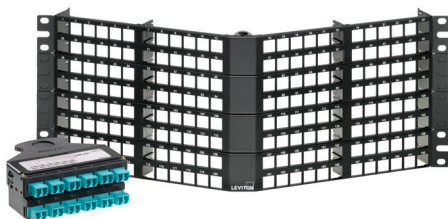
Migration from 10 GbE to 40 GbE

Required component change to enable 40 GbE Solution:

- HDX MTP®-MTP (3x8-fiber to 1x24 fiber) Cassettes
- Opt-X® Unity 8-fiber MTP Array Cords



SPOTLIGHT e2XHD Enclosures



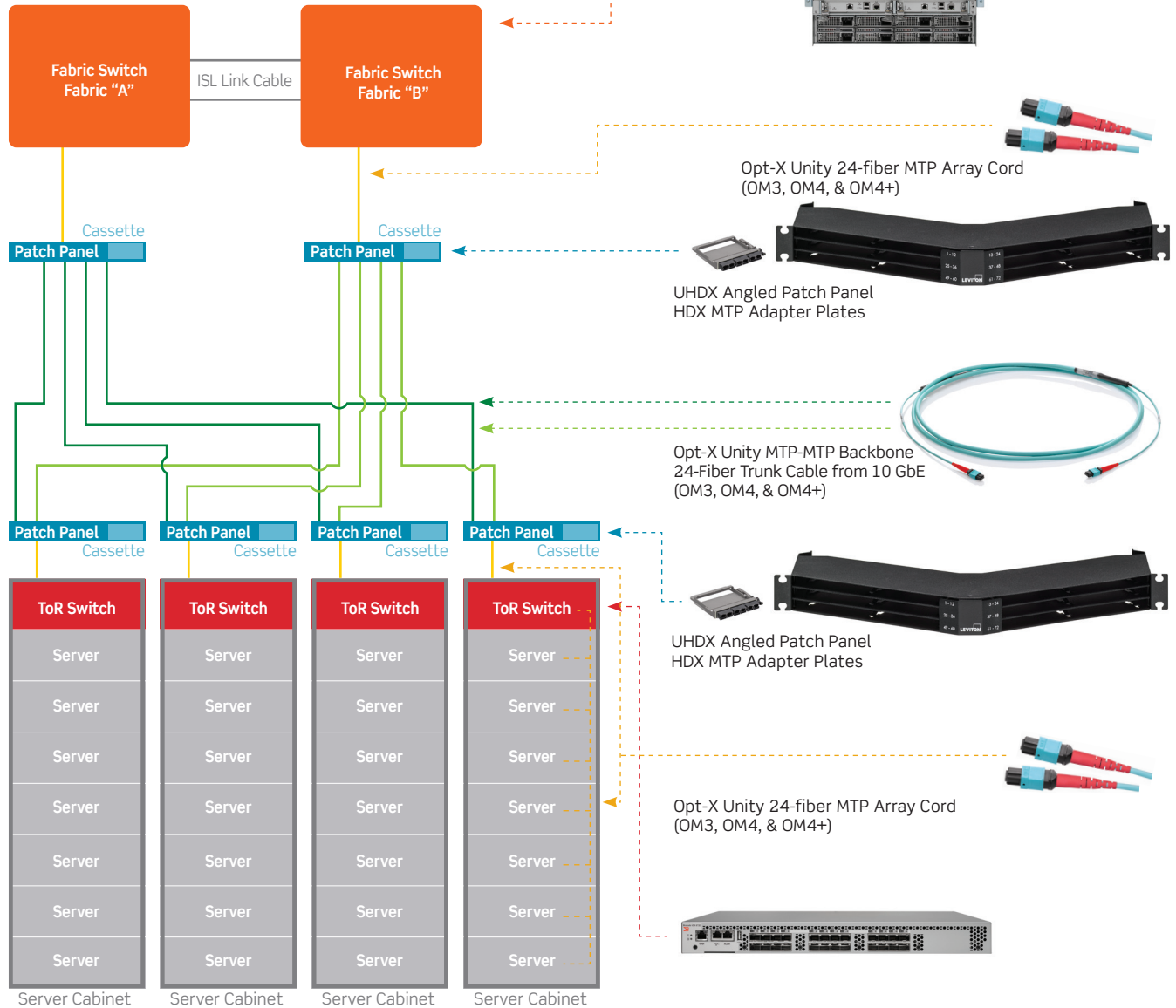
As an alternative to UHDX panels and cassettes, e2XHD Enclosures also accept high-density MTP cassettes, and are available in 1RU and 4RU sizes.

100 GBE (SR10) APPLICATION

Migration from 40 GbE to 100 GbE

Required Leviton component changes to enable 100 GbE Solution:

- HDX MTP® Adapter Plates
- Opt-X® Unity 24-fiber MTP Array Cords



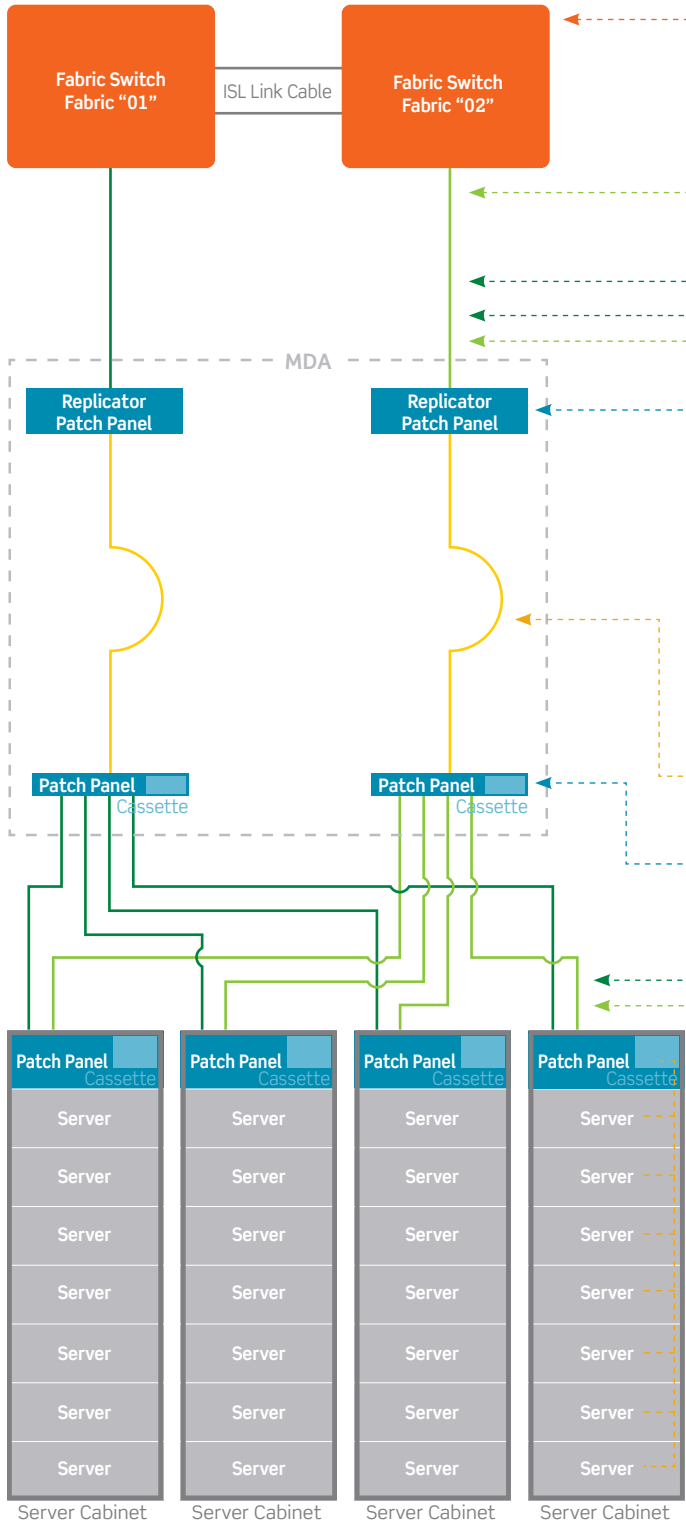
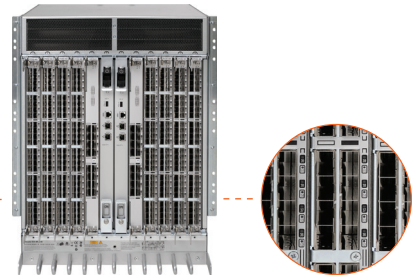
SPOTLIGHT HDX MTP Adapter Plates



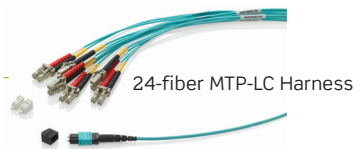
HDX MTP Adapter Plates include four adapters, available in key-up/key-down or key-up/key-up configurations.

SAN TOPOLOGY FOR THE BROCADE DCX 8510 SWITCH

- High-Density Port Replicator Enclosure
- LC Duplex Patch Cords
- MTP® Panel
- MTP-LC Harness
- UHDX Ultra High-Density Angled Patch Panels
- HDX MTP-LC Cassettes
- HDX MTP-LC Cassettes
- Pre-Terminated MTP Trunks



DCX 8510



12- or 24-fiber MTP-MTP Backbone Trunk Cable



Switch Replicator Patch Panel



Duplex LC-LC Patch Cord (OM3, OM4, & OM4+)



UHDX Angled Patch Panel HDX2 MTP-LC 24-fiber Cassette



12- or 24-fiber MTP-MTP Backbone Trunk Cable



UHDX Angled Patch Panel HDX2 MTP-LC 24-fiber Cassette



Duplex LC-LC Patch Cord



Note: Available in OM3/OM4 and OS2 for Fibre Channel

TOPOLOGY INFRASTRUCTURE CONSIDERATIONS:

- Topologies adhere to the following standards: ANSI/TIA-942-A, ASHRAE, IEEE 802.3bac, BICSI, OSHA, other International standards
- Migration strategy for 10/40/100 GbE infrastructure as OEM equipment and internal needs require migration to higher bandwidth speeds
- Cable jacket material should be LSZH, Plenum
- Color-coding for fabrics: available in multiple colors to allow for visual identification
- Patch cord / array length is based on 42U cabinet: top third = 3 ft, middle third = 5 ft, bottom third = 8 ft
- High-density UHDX panels allow up to 72 channels in 1RU and up to 288 channels in 4RU
- Panels are available that can be mounted above racks: either inside cabinets or overhead
- Angled UHDX panels conserve rack space by eliminating the need for additional horizontal cable management

Key Switch Information

- The “leaf” layer comprised of VDX 6740 (10G SFP+ optical) or VDX 6740T (10G RJ45) connected down to servers/storage
- 40G uplinks (4 on each of the 6740s) connected up to the “spine”, comprised of VDX 8770s (-4 or -8)
 - The VDX 8770 comes in two sizes (like the DCX). A smaller 4-slot chassis and the larger 8-slot chassis.
 - The VDX 8770 has 48x10G (SFP+) and 12x40G (QSFP+) interface modules
- The spines are connected to each other via 40G. 100G is coming soon to the VDX 8770 platform.
- Depending on the size of the datacenter, we can:
 - For small data centers: remove the VDX 8770s and simply interconnect the VDX 6740s together via their 40G ports.
 - For large data centers: remove the VDX 6740s and use VDX 8770s in both the spine and leaf layers.

MORE OPTIONS AVAILABLE

Leviton.com/datacenter

See Leviton’s complete offering of data center solutions, including trunks, patch cords, enclosures, panels, cassettes, and cable management.

Leviton.com/configurator

Custom configure pre-terminated solutions and build detailed part numbers.

Contact your local Leviton or Brocade representative for assistance building your data center network infrastructure.

THE SMART CHOICE FOR A BETTER NETWORK

High-performance connectivity backed by
the industry's best service and support

We invent the industry's best technologies. We build them to last. And we stand behind every product and every installation – delivering industry-leading performance and unbeatable service and support – throughout the life of your structured cabling system. Add in the peace of mind that comes from working with a stable, century-old supplier, and you get far and away the highest return on infrastructure investment.

Leviton Network Solutions Division Headquarters

leviton.com/networksolutions

2222-222nd Street S.E., Bothell, WA 98021 USA

Inside Sales

T 800.722.2082

E insidesales@leviton.com

Technical Support

T 800.824.3005 / +1.425.486.2222

E appeng@leviton.com

International Inside Sales

T +1.425.486.2222

E intl@leviton.com

Leviton Network Solutions European Headquarters

brand-rex.com

Viewfield Industrial Estate, Glenrothes, Fife KY6 2RS, UK

Customer Service

T +44.0.1592.772124

E customerservice@brand-rex.com

Leviton Corporate Headquarters

leviton.com

201 N. Service Road, Melville, NY 11747 USA

Customer Service

T 800.323.8920 / +1.631.812.6000

E customerservice@leviton.com

Leviton International Offices

Asia / Pacific

T +1.631.812.6228

E infoasean@leviton.com

India / SAARC

T +971.4.886.4722

E infoindia@leviton.com

Canada

T +1.514.954.1840

E pcservice@leviton.com

Latin America

T +52.55.5082.1040

E lsamarketing@leviton.com

Caribbean

T +1.954.593.1896

E infocaribbean@leviton.com

Mexico

T +52.55.5082.1040

E lsamarketing@leviton.com

China

T +852.2774.9876

E infochina@leviton.com

Middle East & Africa

T +971.4.886.4722

E lmeinfo@leviton.com

Colombia

T +57.1.743.6045

E infocolombia@leviton.com

South Korea

T +82.2.3273.9963

E infokorea@leviton.com

All Other International Inquiries

E international@leviton.com

